U.S. Antarctic Marine Living Resources Program

2012-2013 Weekly Field Reports
Cape Shirreff, Livingston Island

Volume 10
14 January 2013

Science Report

Seabirds

1. We estimate that peak gentoo penguin hatch occurred on 7 January. To date, 6% of the gentoo reproduction study nests are still incubating eggs, 30% are brooding at least one chick, and 64% have failed. In the first week since peak chinstrap hatch, only 2% of the reproduction study nests are still incubating, 67% are brooding one or more chicks, and 31% have failed. The increase of failure rates for reproduction plot nests of both gentoo and chinstrap penguins this past week is mainly due to infertile or addled eggs.

2. We continue to monitor known-age penguins. A few new known-aged gentoo penguin nests have been found this week, bringing the total initiated nests to 38. Of these nests, 37% have hatched at least one chick, 5% continue to incubate, and 58% have failed. Of 59 known-aged chinstraps that have initiated clutches, none are incubating, 51% have hatched at least one chick, and 49% have failed.

3. We began deploying radio tags on chinstrap penguins this past week to measure foraging trip durations during the chick-provisioning period.

4. On 11 January we began diet sampling chinstrap penguins. We collected samples using the wet offloading technique from five nesting penguins after they returned from foraging trips. We then recorded total mass of stomach contents, diet composition, and length and sex frequency of krill for each sample. These samples have consisted entirely of Antarctic krill (*Euphausia superba*).

5. On 7 January we had another visiting macaroni penguin.

6. We continue to monitor Brown skua territories. Two of the territories are only monitored opportunistically when we are able to make the trek over to the far south west side of Cape Shirreff. Currently, we do not know the status of those nests. Of the territories that are regularly monitored, all of them are now brooding chicks or have failed. Seven of these nests have one chick, one has two chicks, and nine have failed. We suspect that high winds during the beginning of last week caused the failure of a few more nests.

Pinnipeds

7. We have recovered all six of our GPS/Time depth recorders from females instrumented during their perinatal periods (i.e., their first visits to shore). These instruments will give us foraging range and dive behavior for the first six trips to sea. However, one female lost her pup while on her first trip to sea and another lost her pup before departing to sea. One more lost her pup to leopard seal predation after four trips. We have collected data on 24 foraging trips. Variability in trip duration for these females is representative of the population at large, as some females made consistently short trips while others made trips up to seven days long.

8. Only 11 of our 30 CCAMLR attendance females have completed six trips to sea. Nine of our attendance females have lost their pups; four were lost to starvation and the other five have lost their pups to leopard seals.

9. Trip durations continue to be longer than average for the fifteen years we have been monitoring, with the possible exception of 2002/03. All 25 remaining attendance study females have completed at least three trips to sea, and only three have not completed at least four trips.

10. Eight of the pups of the nine females that have completed six trips to sea have been weighed according to protocol. Mean mass gain from the start of female foraging cycles to completion of the sixth trip suckling bout is 77.6 g/d (n = 8; s.d. = 19.7; range: 42.3 to 104.0) for all pups.

11. We continue to monitor our adult tagged female population and mother pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Pups have begun entering the water and spend considerable amounts of time now playing in shallow water, making them easily accessible to leopard seals. We estimate that 10% of pups have been lost to leopard seal predation thus far.

12. We captured three fur seals this week for retrieval of archival instruments of over winter geolocation light sensors (GLS). We retrieved seven time depth recorders from females that have lost their pups or have completed six trips to sea.

13. This week we collected our fourth fur seal diet sample of ten scats. To date 39 scats have been collected. Fish and squid continue to be represented more in the diet this year than last year, although complete analyses have not done yet. We also collected one vomitus with unusually large squid beaks.

14. On 11 January we completed our eighth weekly Cape-wide Phocid census. We counted 207 southern elephant seals, 13 Weddell seals, and 11 leopard seals.

15. Leopard seals continue to arrive, and as of 14 January we have recorded 91 sightings of 15 tagged seals. We have recorded an additional 18 sightings of untagged or otherwise unidentified seals. We have deployed ID tags on 2 new animals this year.

16. Leopard seal captures and crittercam deployments: In an effort to describe leopard seal foraging behavior and quantify their impact on Antarctic fur seals, we will be deploying animal borne video instruments (CRITTERCAM developed by National Geographic's Remote Imaging Group) along with highly accurate GPS surface location instruments on adult female leopard seals. To date, we have successfully performed three leopard seal captures on two animals. We have deployed 2 CRITTERCAM/GPS systems and recovered one of them.

Weather

17. We had several nice days this week. Winds averaged 10.7 mph with a maximum wind speed of 54 mph. Most winds this week were easterlies. The average temperature was 1.8°C with a high of 8.6°C and a low of -0.2°C. Precipitation for the week was 0.24 inches. Sunrise is now at 3:45 am and sunset is at 10:28 pm.

Camp

18. The camp received enough precipitation this week to refill two water barrels.

19. The camp continues to have battery problems with our 12-volt power system. Five of the seven days this week resulted in power outages during the night. Coincidentally, the two days where overnight power outages did not occur were very sunny. It is becoming more apparent that the solar panel does more for the failing battery bank than the electric generator.

20. The team was able to get the ATV on the road for the first time this week. Pretty soon, the snow will melt and we can begin to haul up remaining items from the landing beach and up to the camp.

21. Humpback whales were seen spy-hopping just beyond the reef near the landing beach. Sightings of humpback whales have been reported almost daily this week.

22. The supply hut, main hut, freshies room, lab and workshop exteriors have been re-caulked for the upcoming overwinter period.

23. The camp installed 20 new window cover hooks, 40 new window cover eyebolts, and repaired six window covers for the upcoming overwinter period.

24. Snow was removed from the southern main hut weather deck and the gas grill was moved there. Two more walkways were cleared this week: the western walkway connecting the front and back doors of the main hut, and the southern walkway connecting the storeroom hut and the main hut.

25. The camp is excited to receive Dr. Jefferson Hinke on 18 JAN. Additionally, Dr. Mike Goebel and LTjg. David Vejar, NOAA corps, will be departing Cape Shirreff for King George Island to await transport back to South America.

Presented by Mike Goebel and Nicole Cook, with assistance from Doug Krause, Jay Wright, Melany Zimmerman, Michelle Goh, and David Vejar at the Cape Shirreff Field Camp, Livingston Island, South Shetland Islands, Antarctica